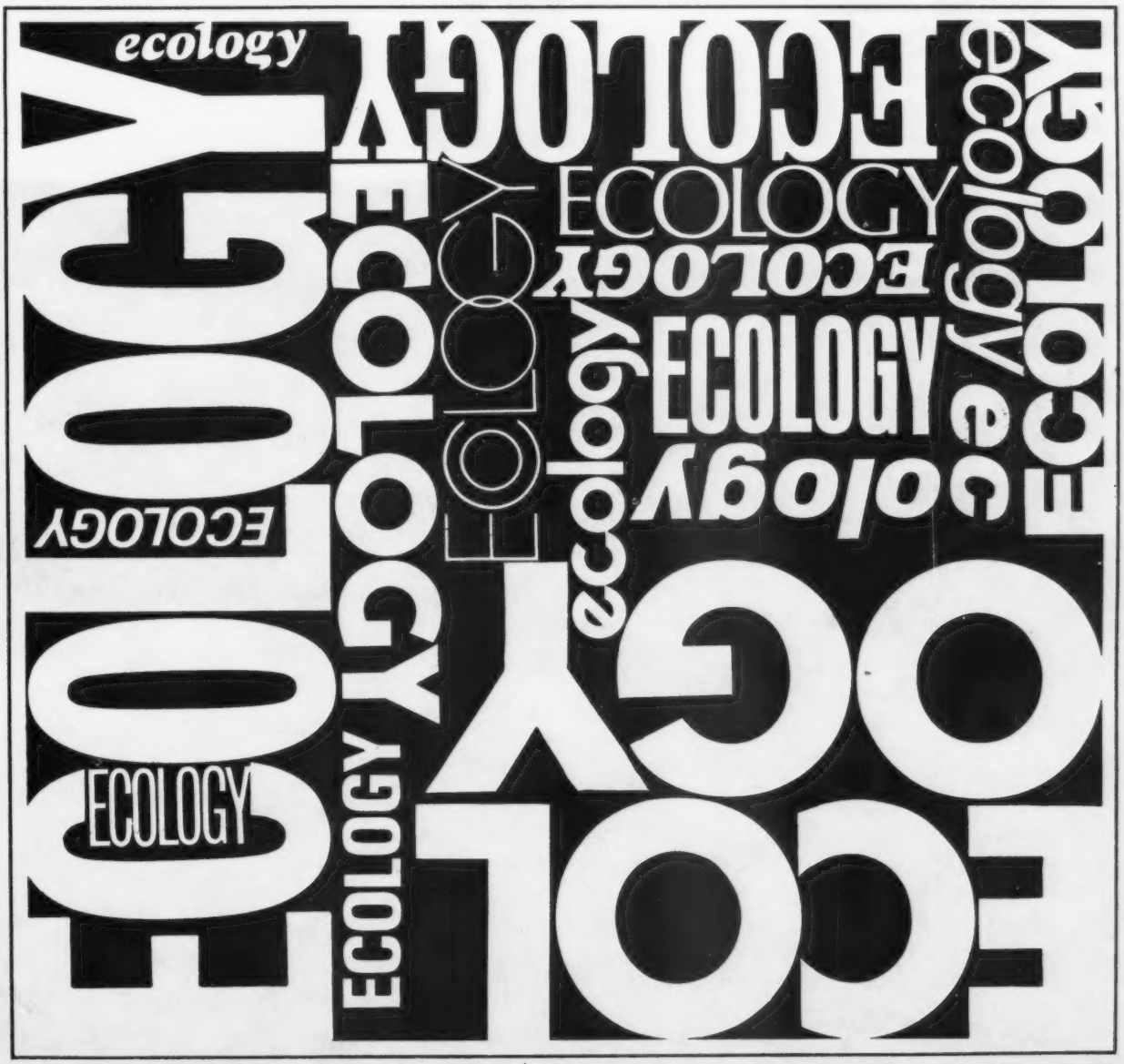
COMMANDERS DIGEST

Another Side of DoD's Ecology Responsibility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Department of Defense (DoD) has been addressing the environmental field in many different research and development projects, but the real impetus came with the issuance of Public Law 91–190, the National Environmental Policy Act, and Presidential Executive Orders 11507 and 11514, issued in early 1970. In essence, the President's orders stated the need for Federal agencies to comply with environmental legislation either in effect or forthcoming from Congress. This has been implemented by appropriate DoD and Military Department directives.

DoD Directive 5100.50 recently revised "the Protection and Enhancement of Environmental Quality" and established the responsibilities with DoD as follows:

- The Assistant Secretary of Defense (Health and Environment) has the principal staff responsibility for administration. He in effect develops policy.
- The Assistant Secretary of Defense (Installations and Logistics) is responsible for planning, design, review, maintenance, and operation of facilities for the prevention and correction of environmental pollution. Basically, he is the landlord.
- The Director of Defense Research and Engineering is responsible for identification,

ECOLOGY in the WORLD of R&D

Morgan, a pilot whale at the Naval Undersea Research and Development Center's Hawaii laboratory, prepares to fasten a grabber claw to a torpedo lying on the bottom of the ocean. Morgan is part of the Navy's deep operation's recovery system which provides routine recoveries from depths of 1,000 feet.

coordination, and direction of the research required to support the environmental quality program.

- The Secretaries of the Military Departments and the Director of the Defense Supply Agency are responsible for actual implementation programs, identification, development of corrective measures, and programming and budgeting to meet the identified needs.

This should indicate that DoD is in fact not only responsive to our military requirements and needs, but has developed policies around the national needs and goals in regard to environmental quality. The DoD has quite a stake in maintenance of environmental quality since it is probably one of the largest landholders; we maintain approximately 800 military installations or bases worldwide.

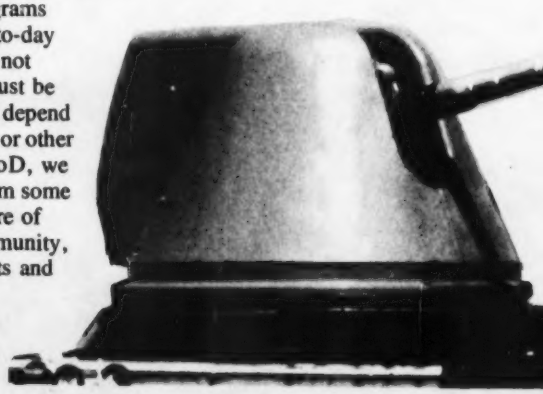
The objective of our R&D programs is to provide the basic technology to enable DoD to assess the environmental impact of its operations, facilities, and activities and to develop equipment which can meet both environmental quality criteria and military requirements. The Office of the Director of Defense Research and Engineering has broad responsibilities. We must insure that the necessary research and development programs are developed and carried out to meet not only our weapons systems necessary to preserve our national security posture but the ancillary R&D programs to insure that these systems do not impact on the environment, either during the test and evaluation, operations, or the ultimate disposal of an obsolete item or system.

Additionally, those R&D programs necessary to insure that our day-to-day operations and base activities do not cause environmental problems must be developed. In the latter area, we depend largely on the civilian community or other agencies for assistance. In the DoD, we handle some materials and perform some operations and activities which are of little concern to the civilian community, such as explosives and propellants and large-scale film processing and electroplating. We do then have some problems unique to DoD.

Within DoD, we have established general priorities to address the R&D problems. The prime priorities are aimed at developing solutions to either unique DoD environmental problems or to major facility or equipment problems for which there are no available commercial solutions. This is most important since the shutting down or curtailment of essential activities necessary to maintain our national defense posture can have serious consequences.

Other priorities include the development of data pertinent to DoD operations to serve as a basis for standards or criteria where none exist or where based on inadequate data; the development of R&D programs to make present pollution abatement technology more timely and cost effective, and to engage in R&D efforts in which DoD has a unique expertise or equipment to evaluate and extend the technology base.

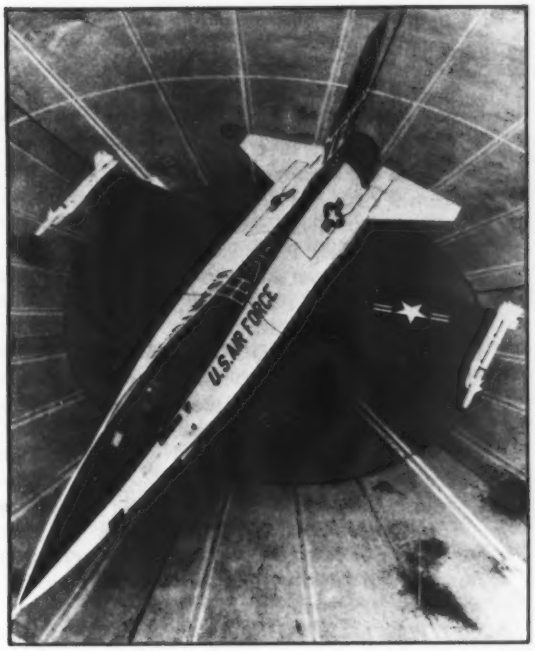
But what about the magnitude of the DoD research and development program in environmental quality? This has been a rapidly emerging effort. We have



performed many of these same efforts in the past. However, we associated them with a specific weapon system or installation as a part of the cost effectiveness, public relations, public health, or military requirements program.

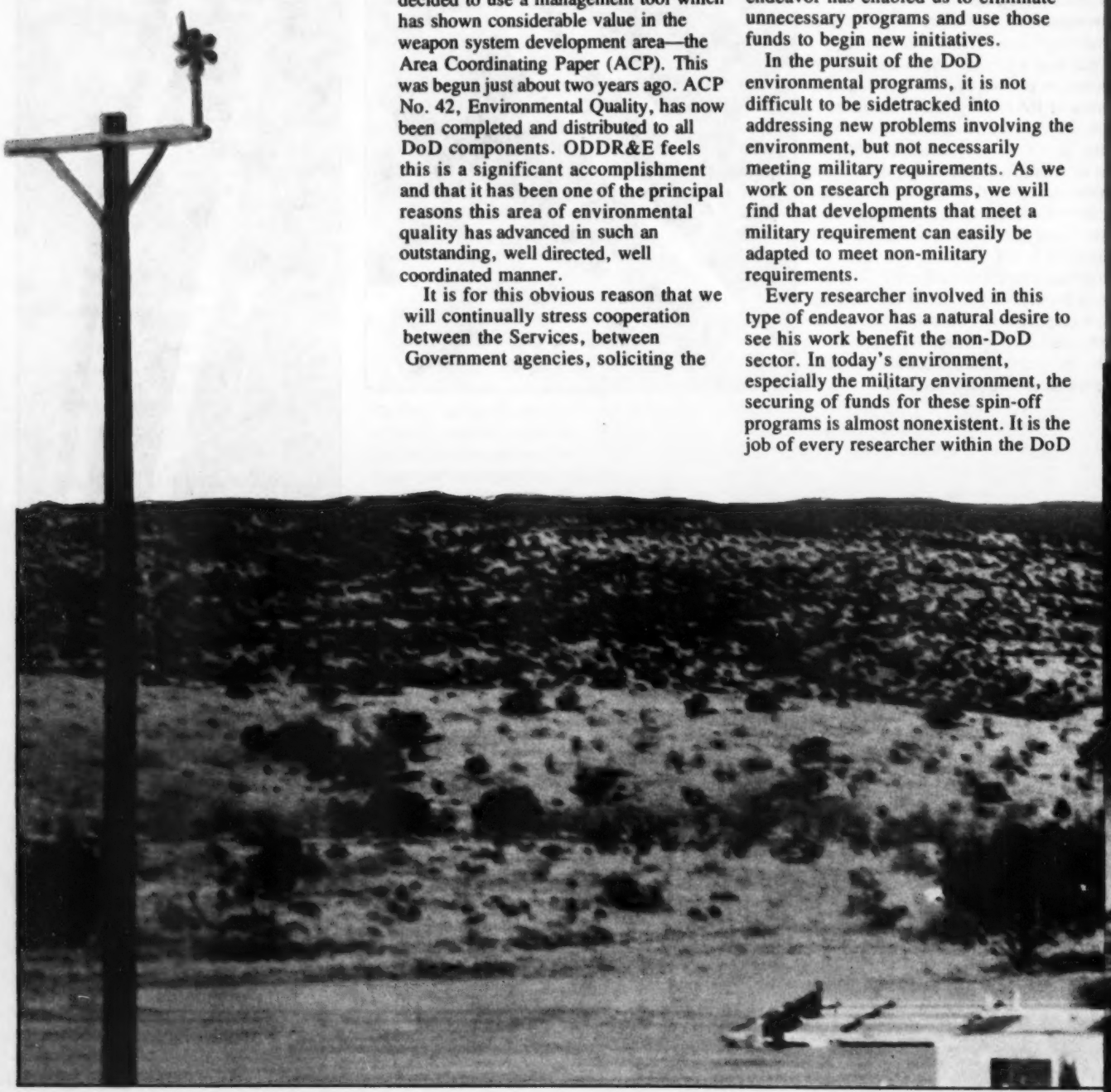
Unfortunately, the DoD Environmental Quality R&D efforts in the past have been rather fragmented; they had low visibility, and were often generated in response to crisis situations. In terms of R&D programs or projects specifically termed environmental quality, in FY 71 only about $9 million could be identified. However, as implementation of the Public Laws and Executive Orders were undertaken, this rose to about $20 million in FY 72 and $26 million in FY 73.

Proposed expenditures for FY 74 and planned for FY 75 are $30.5 and $31.7 million respectively. This does not include medically oriented—i.e., public health—program areas; these are carried in the medical sciences budget.



Research and Development within the Department of Defense must comply with Federal environmental standards in regards to air, water and land quality and noise effects. The FY-16, top left, and the six inch diameter terminally guided submissile (TGSM) tank stopper must meet these standards. At left, a Navy eight inch caliber lightweight gun launches its projectile during development testing.

An Army Lance missile lifts off its launch facility at the White Sands Missile Range, New Mexico. The missile must meet Federal enviromental standards.



Comparably, some areas of environmental sciences such as oceanographic or atmospheric efforts are not included here.

To facilitate the management and coordination of this diverse effort, it was decided to use a management tool which has shown considerable value in the weapon system development area—the Area Coordinating Paper (ACP). This was begun just about two years ago. ACP No. 42, Environmental Quality, has now been completed and distributed to all DoD components. ODDR&E feels this is a significant accomplishment and that it has been one of the principal reasons this area of environmental quality has advanced in such an outstanding, well directed, well coordinated manner.

It is for this obvious reason that we will continually stress cooperation between the Services, between Government agencies, soliciting the support of industry and universities and all those who can make any contribution to the environmental programs needed to meet the DoD requirements. We have seen in the past few years many, many instances where this cooperative endeavor has enabled us to eliminate unnecessary programs and use those funds to begin new initiatives.

In the pursuit of the DoD environmental programs, it is not difficult to be sidetracked into addressing new problems involving the environment, but not necessarily meeting military requirements. As we work on research programs, we will find that developments that meet a military requirement can easily be adapted to meet non-military requirements.

Every researcher involved in this type of endeavor has a natural desire to see his work benefit the non-DoD sector. In today's environment, especially the military environment, the securing of funds for these spin-off programs is almost nonexistent. It is the job of every researcher within the DoD

organization to be aware and to recognize the spin-off benefits that can occur from the many military environmental R&D programs. It is the job of the researcher to make known to other Government agencies, to the scientific community, and to whoever he thinks will take this information and utilize it for the benefit of the Nation and the world as a whole.

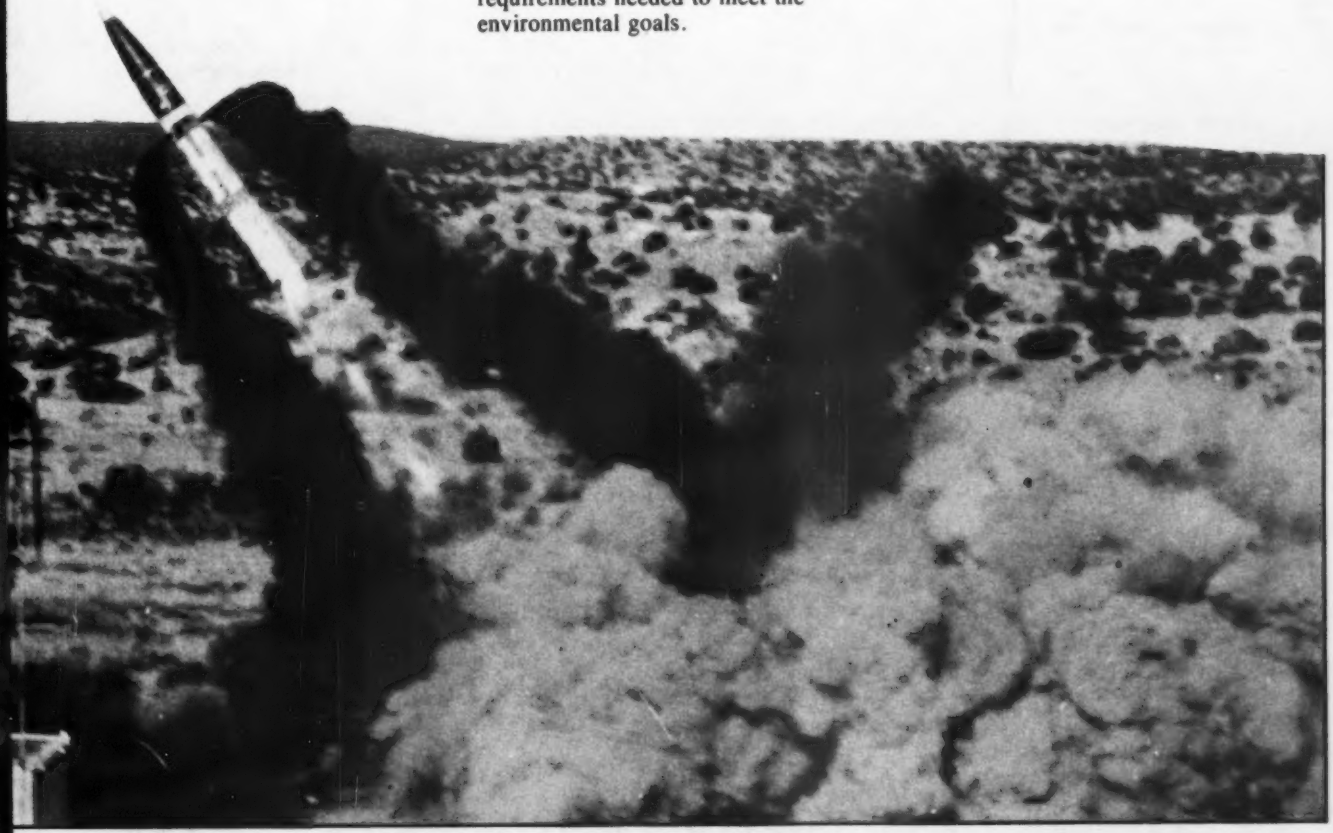
In return, it is a job of the military researcher to research the literature; to keep in close communications with the other Government agencies, the scientific body, to obtain work that they have done, or are doing; and capitalize on this work in meeting our military mission requirements. It is through meetings, and through close personal contact with the scientific community within industry, within the universities, and within other Government agencies that DoD will be able to get the most return on its investments from its own environmental research and development programs.

Since the emergence of the energy crisis last winter, there have been significant reverberations in the environmental field. It has become obvious that, in meeting the environmental requirements, the immediate energy objectives may be affected.

It is not uncommon to see the environment programs become the whipping boys of those who attempt to raise the energy issue as reasons for not meeting many of the environmental objectives. There is no question within the Department of Defense that we face difficult decisions. It will be obviously necessary and imperative that remedies taken to meet the environmental objectives not pose drastic energy requirements. DoD must find the ways to meet the environmental objectives and yet minimize the energy requirements needed to meet the environmental goals.

The format of the ACP departs somewhat from the usual presentation of environmental material since our programs in DoD are generally mission oriented. Therefore, we have chosen to address the environmental quality program in a selected group of six technology areas. These are: aircraft, vessels, vehicles, weapons, facilities, and special programs. Within each of these are the necessary subsections to adequately cover the problem area.

Within each technology area the particular medium concerned is addressed, such as air quality, water quality, land quality or noise effects. Each of these areas is related to the particular applicable standards; an evaluation of the present technology is made and an investment strategy is developed. These are then compared against the current R&D programs, and finally, a supplemental R&D program is developed to meet the investment



strategy, if this is required.

In the review of research and development programs, it is not uncommon to hear complaints of considerable duplication in research efforts within individual Government agencies. These complaints are in many cases justifiable and the same complaint existed five years ago, ten years ago or as long back as we can recall.

A major objective in DoD's research and development program is to eliminate unnecessary duplicative efforts. However, long range plans coordinated with the users to meet expected new standards are still required in all areas. This will allow the development of a stable program and a sound technology base to meet our rapidly changing military requirements as well as national goals and standards.

Even though the research and development funds have gone up substantially in the last four years, there are still insufficient funds to do everything that should be done. Within DoD, we constantly face a dilemma of competing with high-priority items. The environmental researcher naturally insists that his programs are important and that he needs additional funds to accomplish his objectives; yet, in all fairness, when attempting to prioritize the missions within DoD, dollars invested in the environmental program often do little to improve weapon system capabilities.

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It is therefore, a difficult task for decision makers to take funds from top-priority weapon systems and adequately fund environmental programs. In my opinion, the job of environmental researcher becomes much more difficult and much more challenging in seeking funds. He is going to have to be innovative, he is going to have to show considerable initiative, and he is going to have to do a superb job of educating his management, and eventually the decision makers. Even with this concerted effort, there will still be insufficient funds to fund all of the priority environmental projects.

The Air Force B-1 bomber, currently under development by Rockwell International, must meet Federal enviromental standards. There are six technology areas in the enviromental quality program: aircraft, vessels, vehicles, weapons, facilities and special programs.

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